

Confidential Claim Retracted

Authorized by: SE

Date: 4/25/13

November 1, 1983

Programs Officer, Division of Energy & Mineral Resources, Golden CO

Request for Assistance from the U. S. Geological Survey

Director, Office of Trust Responsibilities

Since 1953, Anaconda Minerals Company has been mining uranium ore from their Jackpile - Paguete Mine located on the Laguna Indian Reservation, New Mexico. Because of the depressed uranium market and the rapid declining price for uranium concentrate (from \$43/lb  $U_3O_8$  in June, 1979 to \$17/lb in September, 1982), mining operations were discontinued in 1982 and the mine was decommissioned and closed permanently.

In December 1980, the Department of the Interior determined that the preparation of an Environmental Impact Statement was required and that it should address reclamation of the mine site and the affected adjacent areas.

One of the major concerns of the Pueblo of Laguna is the structural damage of homes in the Village of Paguete. The Pueblo maintains that Anaconda is responsible for the damage and desires to negotiate a settlement with the company on this issue. However, with the data presently available it is difficult to prove to what extent the damages were caused by mining operations in the near by pits.

In their investigations, Anaconda has directed the attention chiefly to the seismic effects of their rock blasting operations. The results were not very convincing. They also seem to have a bias in favor of the company. Therefore, a more comprehensive and systematic study, which would generate the information necessary to determine whether or not the home damages were caused by blasting and/or other actions related to past mining activities is needed and should be given the highest priority. A written request, dated August 19, 1983, to assist the Pueblo and the BIA in such a study was sent to the Office of Earthquakes, Volcanos and Engineering of the U. S. Geological Survey. A copy of the letter is attached.

In response to our request Mr. Ken King of the above mentioned office visited the Village of Paguete on September 13, 1983. Based on his observations, made during the inspection of several structures and buildings in the village, Mr. King is of the opinion that some of the damage may be related to the mining operations and that new techniques and methods, developed in the last 5 years, should be used to examine the possible effects of mining on the Village of Paguete. He also stated



9403957

CONFIDENTIAL

POI-EPA01-0001625

that structural damage does not necessarily have to be caused by seismic vibrations with peak velocities exceeding maximum values generally considered as acceptable. Vibrations with lower than the acceptable maximum values but in tune with the structure of the dwelling are capable of causing damage also.

A short report on his inspection visit and a suggested plan of action were submitted by Mr. King in a letter, dated October 6, 1983. A copy of this letter is also attached. This office is in support of the plan which, if implemented would cost \$100,000 and recommend approval. Due to policies and priorities under which the Office of Earthquakes, Volcanos and Engineering has to operate, an official request for assistance from the Assistant Secretary - Indian Affairs is needed to have the USGS make Mr. Ken King available to carry out the study and to give the project top priority.

Enclosed is a memorandum drafted for Assistant Secretary Mr. Ken Smith. This memorandum, addressed to the Assistant Secretary of Energy and Minerals, requests technical assistance from the USGS to investigate the possible effects of mining on the Village of Pagate and to assign Mr. Kenneth King of the Office of Earthquakes, Volcanos and Engineering to the project, supported by personnel and equipment as needed to perform the tasks as outlined.

David L. Baldwin

cc: Area Director, Albuquerque Area Office  
Superintendent, Laguna Agency  
Governor, Pueblo of Laguna

Division of Energy and Mineral Resources  
Lakewood Office Plaza  
730 Simms Rm 239A  
Golden, CO 80401

August 19, 1983

U. S. Geological Survey  
Office of Earthquakes, Volcanos and Engineering  
Attn: Mr. John Filson  
MS 905 National Center  
Reston, VA 22092

Dear Mr. Filson:

The Bureau of Land Management and Bureau of Indian Affairs are currently developing a reclamation plan for Anaconda Mineral Company's Jackpile-Paguate Mine. Before preparing a plan, the area to be reclaimed must be determined. If we define the reclamation area as all the lands affected by the mining operations, the village of Paguate has to be included because of its close proximity to the mine (see attached map). The village is approximately 1000 feet from the edge of the pit. For this reason, the Pueblo of Laguna and the Bureau of Indian Affairs are presently reviewing the effects of vibrations (blasting, mine equipment, etc) caused by past mining.

On August 16, 1983, Stephen Manydeeds, Staff Geologist, attended a meeting between the National Park Service and Mr. Ken King from your Denver office. Mr. King discussed the effects of vibrations from road construction equipment on the historic structures at Chaco Culture National Historical Park. Further discussion with Mr. King indicated that his research at the Park may be applied to the Village. We are requesting that Mr. King be made available to assist the Tribe and BIA in this study.

If you have any questions, please call FTS 234-6961.

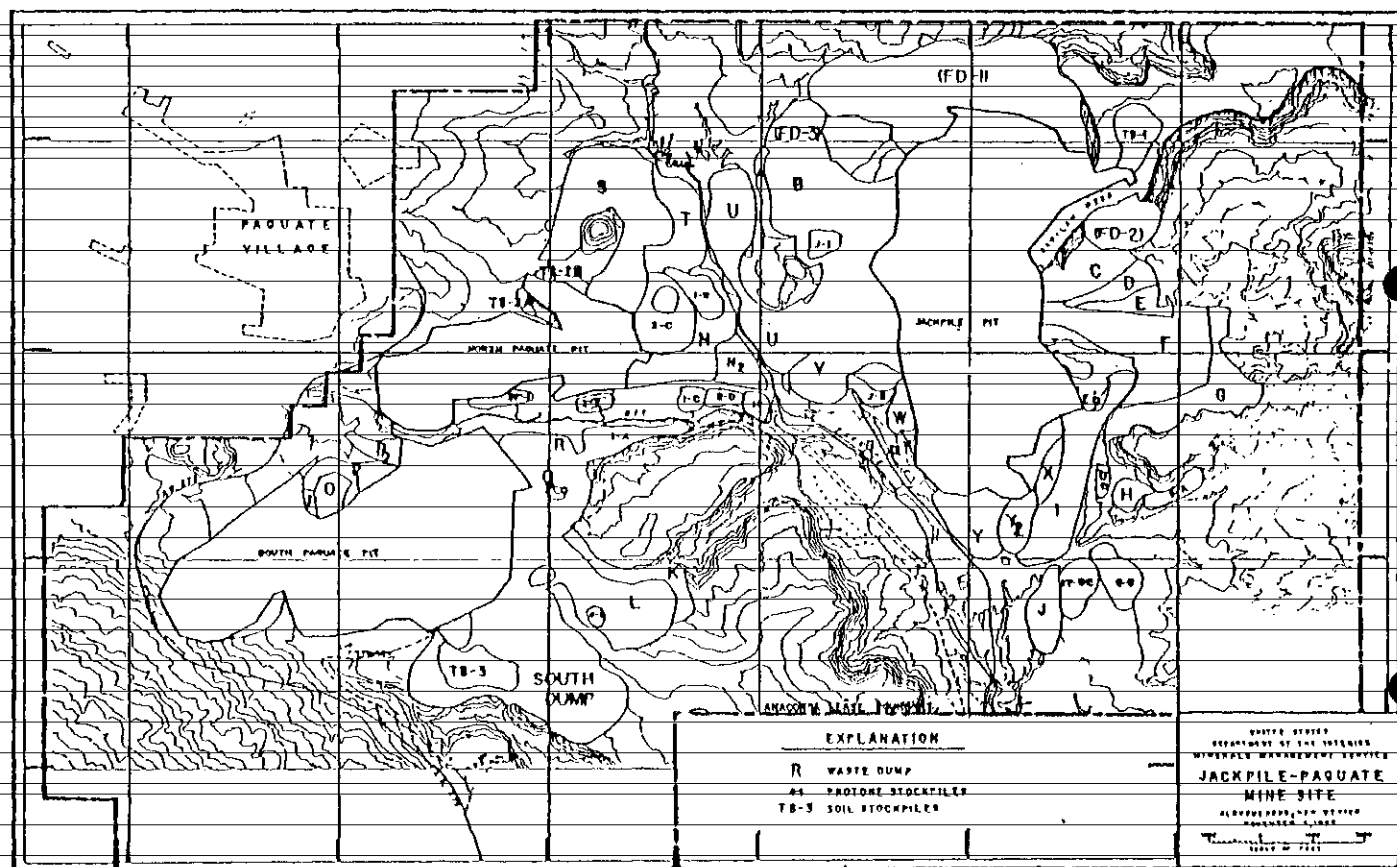
Sincerely yours,

David L. Baldwin

David L. Baldwin  
Programs Officer

Enclosures

cc  
Mr. Ken King, USGS  
Mr. Ted St. Agermisser, USGS  
Area Director, Albuquerque Area Office  
Superintendent, Laguna Agency



Schematic Map of Jackpile-Paguete Mine Complex. (A listing of the areal extent of and material at each site is provided in Table 2.8.)

CONFIDENTIAL

POL-EPA01-0001628



# United States Department of the Interior

GEOLOGICAL SURVEY  
BOX 25046 M.S. 966  
DENVER FEDERAL CENTER  
DENVER, COLORADO 80225

IN REPLY  
REFER TO.

October 6, 1983

RECEIVED  
DIV. ENERGY & MINERAL RESOURCES  
1983 OCT 11 AM 10:31

Mr. David L. Baldwin  
Program Officer  
Bureau of Indian Affairs  
Division of Energy & Mineral Resources  
Lakewood Office Plaza  
730 Simms, Room 239  
Golden, Colorado 80401

Dear Mr. Baldwin:

I had a meeting on September 9, 1983 with Mr. D. L. Cramer Bornemann and Mr. Manydeeds on subject of your letter August 19, 1983 to Mr. John Filson. I believe that the research that I am doing at Chaco Canyon will be pertinent to your future road building and land reclamation near the pueblo of Pagate. During that meeting, we also decided that I should visit the pueblo to inspect the structural damage and that I should review the L. I. Oreard report.

I made an inspection visit of Pagate on September 13, 1983. Mr. Roland Johnson of the B.I.A. and I examined the structures of Mr. Garcia, Mr. Johnson, Mr. Lorenzo, Mr. Aragon, the church, the community building and several other ancillary buildings. We inspected the general geology of the area, the slope failures on the cliffs near the Garcia's residence, several drainage ditches, and the highwalls of the Pagate Pit. I have also reviewed the report by L. I. Oreard.

I gave a verbal report on my observations and suggested recommendations at a meeting with Mr. Cramer Bornemann, Mr. Manydeeds, Mr. Ries and Mr. Blueyes on September 29, 1983. My observations from the inspection trip were:

- 1) The buildings of Pagate are of the "New Mexico" type adobe (12-20" thick, rock-adobe filled type).
- 2) A large number of the buildings are underlain by less than 3' of sediments or are directly on bedrock.
- 3) Some of the buildings are on at least 20-40 feet of unconsolidated sediments.
- 4) At least one drainage pattern is toward one of the buildings.
- 5) The formations underlying the pueblo dip gently toward the Pagate Pit.
- 6) At least 70% or more of the buildings show structural or cosmetic damage.
- 7) Most of the repairs and/or structure support to the damaged buildings has been unsuccessful and redamaged.
- 8) Most of the repairs have been made by using concrete, plaster or tape and not with adobe materials.
- 9) Most of the damage seem to be less than 20 years old.
- 10) The cliffs near Mr. Garcia's residence show recent slope failure.

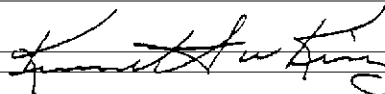
My suggestions to explain the possible causes of the damage and to help plan future road building and further quarry stabilization are:

- 1) Have a detailed building damage survey made of Paguate.  
There was such a survey made approximately 10 years ago. The survey will give a base damage pattern and damage timing base.
- 2) Have a similar survey made of a similar pueblo which is not located near a quarry.  
This will establish the structural cracking norm of the adobe buildings due to drying, ageing and normal weathering processes.
- 3) Have a soil survey (engineering) made which includes depths and velocity parameters of Paguate.  
The soils data can then be correlated with the damage survey.
- 4) Establish the engineering parameters of the buildings (natural periods and damping).
- 5) Have a test explosion in the pit to examine the spectral attenuation, possible energy channeling and site response at pertinent damaged/undamaged areas.
- 6) Use the data from #5 to develop transfer functions from the existing seismic data from past quarry explosions to the present damage/undamaged areas.
- 7) Examine the specific geology/hydrology of Paguate to determine possible soil/strain/hydrologic changes over the past 20-50 years.
- 8) Correlate the above results to establish probable cause of the existing damage.

I believe the Council of Energy Resource Tribes have a contractor who may be able to accomplish most of the above recommendations. The results of the suggested studies will identify the probable causes of the damage. However, in all probability, the studies will not find a single cause for all damage and will not be able to explain causes for all damage cases.

I hope this inspection/review is of some help. I will keep you informed on the progress at Chaco Canyon and I am available to discuss these issues with you.

Sincerely,



Kenneth King

cc: R. Bucknam  
J. Filson